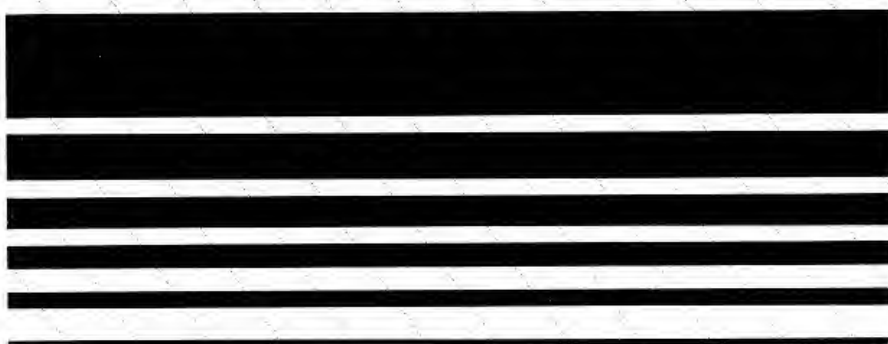


OWNERS MANUAL



MS™ SERIES

STEREO MIXING SYSTEM



WARNING: TO PREVENT ELECTRICAL SHOCK OR FIRE HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. BEFORE USING THIS APPLIANCE, READ THE OPERATING GUIDE FOR FURTHER WARNINGS.

CHANNELS

GAIN

Varies the gain of the channel input stage to allow a wide input dynamic range. Calibration is in dB from approximately 2 dB to over 60 dB. Proper adjustment of the input gain is aided by observance of the LED STATUS DISPLAY.

MONITOR SEND A/B

Two monitor sends are provided in a dual-concentric control. The inner knob is Monitor A, the outer knob is Monitor B. Both sends are "Pre EQ" and "Pre Fader", meaning before equalization and before the channel fader. Both sends are independent of all channel functions except the gain control, allowing adjustment of the "house" mix without affecting the monitor mixes.

HIGH FREQUENCY EQ

An active tone control (shelving type, +15 dB) that varies the high frequency range.

MID/FREQUENCY EQ

The inner "mid" control is capable of 15 dB of boost or cut at the center frequency selected by the outer "FREQUENCY" control. Frequency range is 200 Hz to 5 kHz.

LOW FREQUENCY EQ

An active tone control (shelving type, +15 dB) that varies the low frequency range. Caution: excessive low frequency boost causes greater power consumption and increases possibility of speaker damage.

EFFECTS SEND, A/B

Two effects sends are provided in a dual-concentric control. The inner knob is Effects A, the outer is Effects B. Both sends are Post (after) EQ and Post Fader. The "A" send supplies the Effects A master control and the internal reverb. The "B" send supplies the Effects B master control and the internal electronic delay.

PAN

Used to place the channel signal in full left or full right or anywhere between. For some applications it may be used as a rotary channel assignment control allowing assignment to the Left or Right sliders.

PFL (PRE FADE LISTEN)

Allows cueing of any channel or combination of channels instantly through headphones connected to the HEADPHONE jack (master section), or via a powered monitor connected to the PFL AUX. (See Auxiliary Inputs.) All channel functions (except fader) may be monitored via the PFL system.

LED STATUS DISPLAY

Indicates the operational state of the channel. The green -10 dBV (.32V RMS) LED indicates that the channel is active. The red +10 dBV (3.2V RMS) warns that overload could occur. Since the channel is capable of +18 dBV, there is still 8 dB of headroom available when the red LED flashes.

The sampling for status indication is taken at three critical points (after the input amp, equalization and final channel gain stage). Proper channel adjustment should allow the +10 dBV LED to flash only on extreme peaks in the program material.

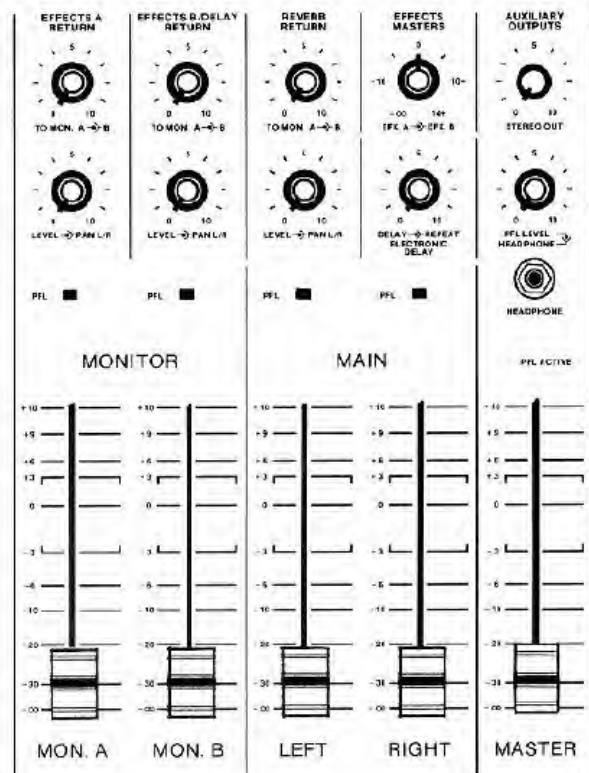
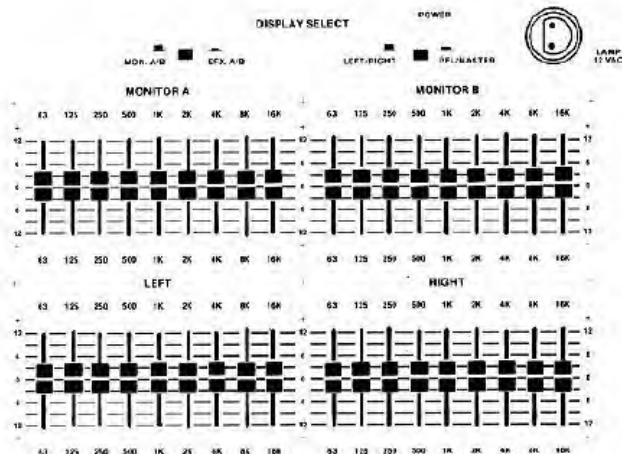
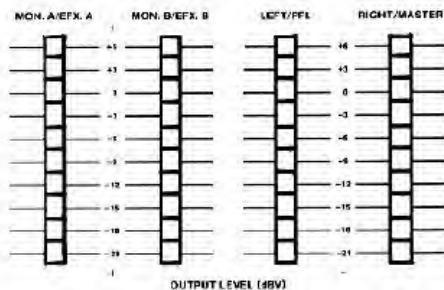
CHANNEL LEVEL SLIDER

Determines the level of the channel. Calibration is in dB and level is variable from "infinity" (off) to +10 dB. This should be operated near the "0 dB" (unity gain) indicator whenever possible to assure an optimum balance between channel noise and headroom.

Operation Note, Channel Level Slider

Sometimes it may be necessary to operate the slider at other than this optimum setting. Example: If the channel need not be as loud as the other channels, the slider may be set lower than 0 dB. This yields lower noise and a visual indication of the channel's relative level. Should more level be needed, it can be achieved with the slider, preventing readjustment of the critical input gain, which would also affect the monitor sends.





Master Section

MASTER SECTION

MONITOR A/B SLIDERS

These are the masters for all channel A and B Monitor sends and determine the overall monitor mix levels.

MAIN LEFT/RIGHT SLIDERS

These are the masters for all channels and determine the overall main or "house" mix levels.

MASTER SLIDER

Controls the overall mix level when the mixer is operated in the mono configuration (2X1). "Master" is the combination of the Main Left and Right signals after the graphic equalizers. (See Master Out.)

MONITOR A/B GRAPHIC EQUALIZERS

These 9 band, one octave equalizers are electrically between the MONITOR level sliders and the MONITOR BALANCED LINE outputs allowing independent equalization.

Operation Note, Graphic In/Out

Graphic IN and OUT jacks are provided to allow use of the equalizers for other purposes if desired. (See Monitor A/B, Graphic In/Out)

LEFT/RIGHT GRAPHIC EQUALIZERS

These 9 band, one octave equalizers are electrically between the LEFT and RIGHT level sliders and the MAIN BALANCED LINE outputs providing independent equalization for each side of the stereo mix.

Operation Note, Graphic In/Out

Graphic IN and OUT jacks are provided to allow use of the equalizers for other purposes if desired. (See Right/Left, Graphic In/Out)

EFFECTS MASTERS (A/B)

The inner knob is the Effects A Master, the outer is the Effects B Master. The Effects A Master determines the effects level supplied to the internal reverb and the Effects A output jack. The Effects B Master determines the effects level supplied to the internal electronic delay and the Effects B output jack. (See Effects Patch diagram.)

ELECTRONIC DELAY/REPEAT

The Delay control adjusts the delay time and is variable from 13 to 185 milliseconds. The Repeat control varies the signal regeneration or number of "repeats" in an echo effect. These controls operate together with the Effects B Master and the Effects B/Delay Return controls.

Operation Note

Select the EFX B LED ARRAY to monitor the Delay drive level. Exceeding +6 dB would distort the delayed signal.

REVERB RETURN (LEVEL)

Controls the reverb effects supplied to the Left and Right Mains. This must be used together with the REVERB RETURN (PAN) control.

REVERB RETURN (PAN L/R)

Allows the reverb effect to be assigned to Left Main, Right Main or both.

REVERB RETURN (TO MONITOR A/B)

Allows the reverb effect to be assigned to Monitor A and Monitor B.

EFFECTS A RETURN (LEVEL)

When an outboard effects device is connected into the Effects A patch loop, this control regulates the intensity or level of the effect in the Left and Right mix. This control must be used together with the associated PAN control.

EFFECTS A RETURN (PAN)

Allows the "A" effects return to be assigned to Left Main, Right Main or both.

EFFECTS A RETURN (TO MONITOR A/B)

Allows the "A" effects return to be assigned to Monitor A and Monitor B.

EFFECTS "B"/DELAY RETURN (LEVEL)

Regulates the level of the internal Electronic Delay and must be used together with the associated PAN control.

NOTE: When an outboard effects device is connected into the Effects B patch loop, the internal delay is disconnected and this control regulates the level of the outboard effect in the Left and Right mix.

EFFECTS B/DELAY RETURN (PAN)

Allows the "B" effects return or the Electronic Delay to be assigned to Left Main, Right Main or both.

EFFECTS B/DELAY RETURN (TO MONITOR A/B)

Allows the "B" effects return or the Electronic Delay to be assigned to Monitor A and Monitor B.

AUXILIARY OUTPUTS (STEREO OUT)

Adjusts the Left and Right signal level to the STEREO OUT jack (patch panel). Signal for this control is taken before (PRE) the Left and Right Main sliders.

AUXILIARY OUTPUTS (PFL LEVEL)

Controls the level for any "Pre Fade Listen" (PFL) source selected on the mixer. One or more PFL switches must be engaged before this control is active (the PFL ACTIVE LED will light).

PFL (MASTER)

These four switches allow cueing of the Monitor Masters (A and B) and/or the Main (Left and Right) through headphones connected to the HEADPHONE jack.

PFL ACTIVE

The LED is illuminated when any PFL switch is activated.

LAMP

A special 2-pin XLR jack is provided for connecting an optional gooseneck mixer lamp (model ML-2) for illumination in adverse lighting conditions.

LED ARRAYS (MONITOR A/EFFECTS A, MONITOR B/EFFECTS B, LEFT/PFL, RIGHT/MASTER)

Four calibrated, switch-selectable, 10 segment LED arrays are provided to visually indicate the levels of the mixes selected.

DISPLAY SELECT

The position of each switch determines which signal sources will be displayed.

REAR PANEL (CHANNELS)

LINE IN

A high impedance (40k ohm), 1/4" jack which will accept signal sources up to +36 dBV (60V RMS).

LOW Z IN

For use with low impedance microphones or low level sources equipped with an XLR connector.

Operation Note

This input will accept up to +16 dBV (6.3V RMS). An additional 20 dB pad can be provided by inserting an "open" stereo phone plug into the Line In jack.

SEND AND RETURN

These jacks allow individual channel patching after the Input Gain control and before the channel equalization (Pre EQ). The SEND may be used to patch from the channel without interrupting the channel signal path. The RETURN is a switching jack which interrupts the normal signal path allowing external signal processing equipment to be patched "in-line" with the channel.

PHANTOM POWER ON/OFF

These switches allow on/off selection of the 48V DC phantom power in groups of four channels.

RIAA PHONO INPUTS

The last two channels may be operated as phonograph inputs by selecting the "PHONO" position of the NORMAL/PHONO switch. In the PHONO mode, both channel inputs (11 and 12 on MS-1221, 15 and 16 on MS-1621, 23 and 24 on MS-2421) are rerouted to the phono jacks near the Master Patch Panel.

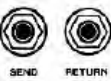
Both units are specially equalized (RIAA EQ) and do not require an onboard RIAA equalizer/preamp. When the PHONO mode is selected, the channels Line In and Low Z inputs are disabled.

NOTE: Other equipment such as tape decks do not usually require RIAA equalization and should be patched directly to the channel inputs.

CH. 15 & 16

SOURCE
NORMAL
PHONO

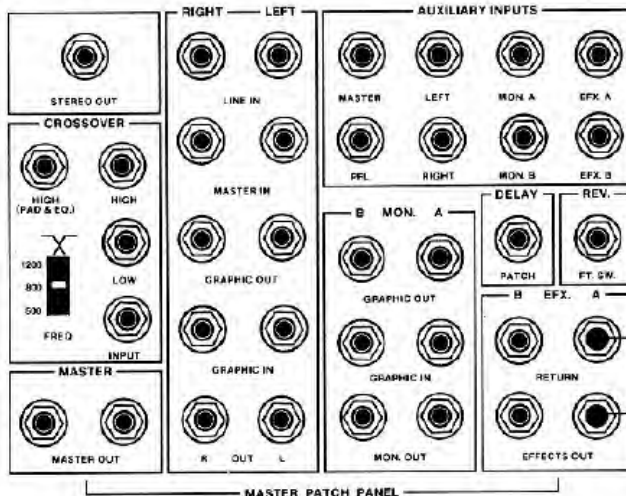
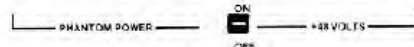
16



LOW Z IN



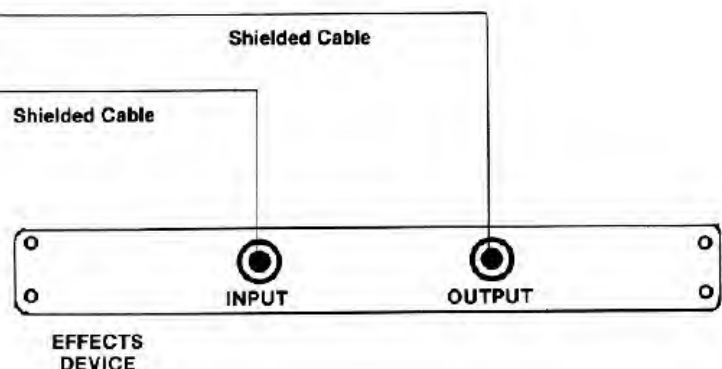
RIAA
PHONO
INPUT



PATCH FOR EFFECTS DEVICES

Effects Hookup is typical for Delay units, Phasors, Flangers, Chorus units, etc. The "A" Effects loop is illustrated. "B" may be patched in the same manner.

NOTE: Effects devices used with this system should be "line-level" products to work satisfactorily.



REAR PANEL (MASTER)

AUXILIARY INPUTS

May be used to patch an external signal into any of the eight mix buses: Master, Left, Right, Monitor A, Monitor B, Effects A, Effects B and PFL. These inputs are primarily provided for patching an auxiliary sub mixer to gain additional channels.

Operation Note

The PFL Auxiliary input, normally used to patch the PFL systems of two mixers together (via a shielded stereo cable), may also serve as an extra "PFL mix" output or to drive a powered monitor (or equivalent). For this application use a shielded cable with a stereo ¼" phone plug (leave the ring "open") so the PFL switching will remain active.

STEREO OUT

This ¼" stereo (ring-tip-sleeve) jack provides a stereo output from the LEFT and RIGHT Mains *before* the sliders and *before* the graphic equalizers. This output level is adjusted by the STEREO OUT control (Master Section).

RIGHT/LEFT (LINE IN)

These switching jacks allow insertion of signal processing equipment "in-line" with the Right and/or Left Mains. They also provide direct access to the line driver stages ahead of the Left and Right Balanced Line Outs. (See Mono Operation Patch Diagram.)

RIGHT/LEFT (MASTER IN)

These inputs are similar to the Right/Left Line Inputs, except they provide direct input to the Master summing section. These are switching jacks which interrupt the normal signal path to the Master. These inputs are useful for inserting external signal processing equipment "in line" with the Right and/or Left Mains. They also allow the graphic equalizers to be bypassed if desired.

RIGHT/LEFT (GRAPHIC IN/OUT)

Both graphic equalizers can be patched into other signal paths by using these jacks. The IN (switching) jacks allow the graphic to be switched away from its normal input, to accept an external signal to be equalized. This allows the internal equalizers to be used as if they were outboard graphic equalizers.

RIGHT/LEFT (OUT)

These outputs are from the Right and Left Mains *before* the graphic equalizers. These jacks are useful for bypassing the equalizers, if desired, by patching the Right/Left Outs directly to the Right/Left Line Inputs, or direct to the Master (via the Master Inputs).

MONITOR A/B (GRAPHIC IN/OUT)

Both graphic equalizers can be patched into other signal paths by using these jacks. The IN (switching) jacks allow the graphic to be switched away from its normal input to accept an external signal to be equalized. This allows the internal equalizers to be used as if they were outboard graphic equalizers.

MONITOR A/B (MONITOR OUT)

These outputs are from the Monitor A & B *before* the graphic equalizers. These jacks are useful for bypassing the equalizers, if desired, by patching the Monitor A/B Outs directly to the Monitor A/B Line Inputs.

MONITOR A/B (LINE IN)

These switching jacks allow insertion of signal processing equipment "in-line" with the A and/or B monitors. They also provide direct access to the line driver stages ahead of the Monitor A and B Balanced Line Outs.

MASTER OUT

This output is a "mono" combination of the Left and Right program material *after* the equalization. The level is adjusted by the Master Slider.

Operation Note

In mono operation, a "balanced" line output is often needed to patch to the power amplifiers on stage. This can be achieved by patching the Master Out to one of the Line (Right or Left) Inputs and then using the associated Balanced Line Output. (See Mono operation patch diagram.) The Master Out jacks may be used to patch to the power amplifier(s) if they are near the mixer or if balanced lines are not otherwise required.

EFFECTS A/B (OUT, RETURN)

These are the Effects patch loop connections for the two internal effects buses. The Effects Out is for patching to the input of an outboard effects device. Next, patch the effects device output to the respective Effects Return. (See Effects Patch diagram.)

REVERB FOOTSWITCH (REV./F.S.)

The reverb may be remotely selected, on or off, by a simple footswitch (optional) and will affect only the reverb function. For proper operation, the footswitch plug should only be inserted to the first detent or "click" of the jack. Full insertion will completely override the reverb function.

NOTE: This jack may also be used as a third Effects Return. For this function, the return cable plug should be fully inserted into the footswitch jack. In this mode, the REVERB RETURN control in the Master section controls the level of the third effect.

DELAY PATCH

This stereo switching jack allows the internal Electronic Delay to be "removed" from the Effects "B" bus and patched to other sends and returns as if it were an outboard delay device. It is necessary to use a shielded stereo "Y" cable. The "tip" accesses the Delay input, the "ring" accesses the Delay output.

NOTE: Only delayed signal is available at this output.

CROSSOVER INPUT

The electronic crossover is internally patched to the Master Output, however, the INPUT jack is of the switching type, which allows another source to access the crossover if desired.

CROSSOVER FREQUENCY

The internal crossover is designed to provide an 18 dB per octave frequency dividing function, and three crossover points are selectable. The crossover point selected should be determined by the speakers or speaker/horn combinations used in your system. (See your speaker enclosure specifications.)

CROSSOVER (LOW)

This is to be patched to the "low pass" power amplifier input. (See crossover patch diagram.)

CROSSOVER (HIGH)

This is to be patched to the "high pass" power amplifier input. (See crossover patch diagram.)

CROSSOVER (HIGH (PAD & EQ))

This is to be patched to the "high pass" power amplifier if the high frequency component of the speaker system uses a Peavey Model 22A driver.

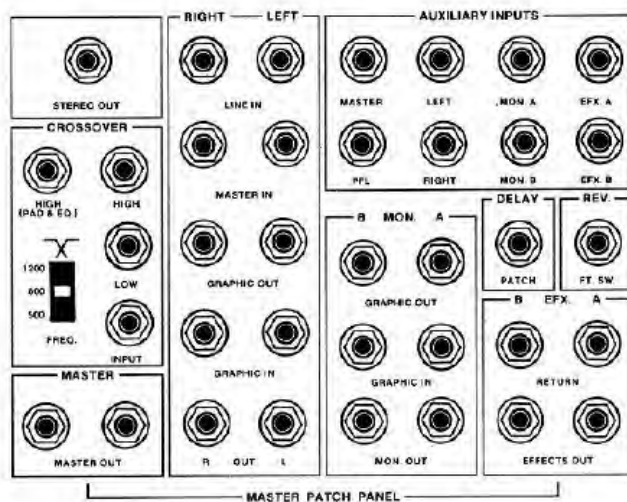
The HIGH EQ output provides special mid frequency pad and high frequency boost to maximize the response of the model 22A driver. (See crossover patch diagram.)

BALANCED LINE OUT (MAIN L/R, MONITOR A/B)

All four are transformer balanced, XLR outputs to allow quiet operation even with long multi-conductor snake cables.

Operation Note

Any signal may be sent to the balanced outputs via its respective Line In jack. Patching to the Line Inputs will disconnect the normal signal path to the balanced outputs. (See Master Out.)



Rear Panel (Master)



POWER SWITCH

Depress to "On" position to turn on.

GROUND SWITCH

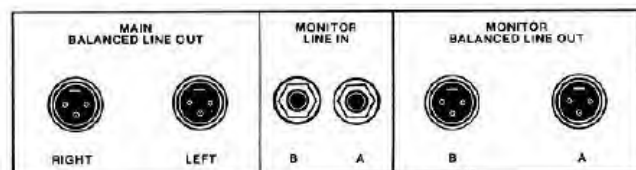
Three position rocker type switch which, in most applications, should be operated in its center or zero position. There may be some situations when audible hum and/or noise will come from the loudspeaker. If this situation arises, position the ground switch to either positive or negative (+ or -) or until the noise is minimized.

NOTE: Should the noise problem continue, consult your authorized Peavey dealer, the Peavey factory, or a qualified service technician. THE GROUND SWITCH IS NOT FUNCTIONAL ON 220/240 VOLT MODELS.

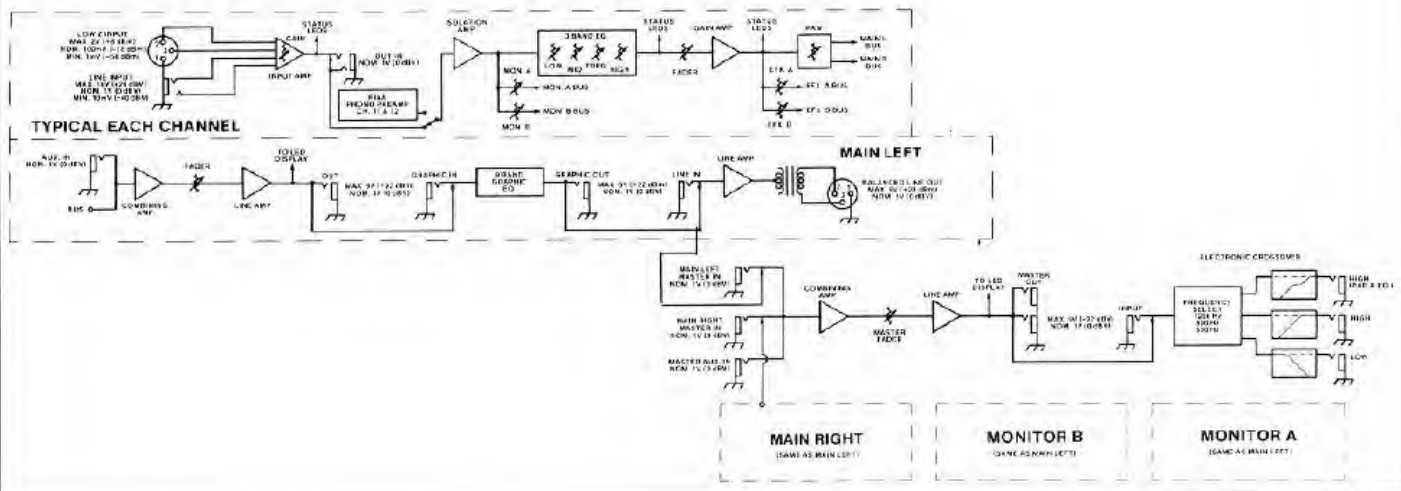
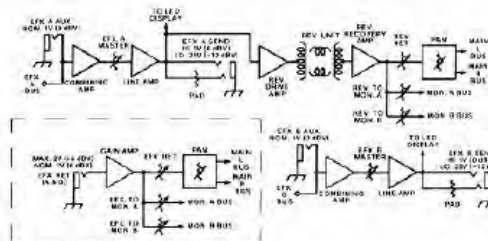
LINE CORD

For your safety, we have incorporated a 3-wire line (mains) cable on the back of the chassis with proper grounding facilities. It is not advisable to remove the ground pin under any circumstances. If it is necessary to use this equipment without proper grounding facilities, suitable grounding adaptors should be used. Less noise and greatly reduced shock hazard exists when the unit is operated with the proper grounded receptacles.

NOTE: The above statement in reference to removing the ground pin is applicable only to 120 volt model products.



Block Diagram



MS™ MIXER SPECIFICATIONS

All specifications are typical unless otherwise noted.

0 dBV = 1 Volt 0 dBV = .778 Volt

All specifications are referenced to nominal output level (0 dBV) unless otherwise noted.

All measurements are wideband 20 Hz to 20 kHz unless otherwise noted.

CHANNEL

EQUIVALENT INPUT NOISE:

(150 Ohm 25°C Theoretical -133 dBV)

(Mic Input to Channel Pre Send)

-133 dBV (150 Ohm, 25°C, 60 dB Gain)

SHORT CIRCUIT INPUT NOISE:

(0 Ohm 25°C)

(Mic Input to Channel Pre Send)

-140 dBV (0 Ohm, 25°C, 60 dB Gain)

FREQUENCY RESPONSE:

+ 2 dB 20-20,000 Hz all EQ flat

DISTORTION:

Less than .05% at 0 dB Output at 60 dB Gain Typical .003% at 0

dB Output at 30 dB Gain

(Mic Input to L or R Outputs, EQ flat, Sliders at 0)

COMMON MODE REJECTION RATIO (CMRR):

Greater than 100 dB

(Typically 120 dB)

INPUT IMPEDANCE:

Mic = 8K Ohms

Line = 40K Ohms

Return = 20K Ohms

OUTPUT IMPEDANCE:

Send = 100 Ohms

HIGH EQ:

+ 15 dB at 10 kHz minimum Center

Detent flat + 2 dB

MID EQ:

+ 15 dB at selected frequency

Center Detent flat + 2 dB

MID FREQUENCY:

200 Hz to 4 kHz adjustment of Mid Frequency

LOW EQ:

+ 15 dB at 50 Hz minimum

Center Detent flat + 2 dB

MAXIMUM PREAMP GAIN:

60 dB minimum

MINIMUM PREAMP GAIN:

2 dB typical

MAXIMUM CHANNEL GAIN:

(Pan at L or R, Slide at Max, EQ flat)

74 dB

MAXIMUM INPUT LEVEL:

Mic = +16 dBV (6.3V RMS)

Line = +36 dBV (60V RMS)

Return = +18 dBV (8V RMS)

MAXIMUM OUTPUT LEVEL:

Send = +18 dBV (8V RMS)

NOMINAL INPUT LEVEL:

Mic = -18 dBm (100 mV, -20 dBV)

Return = 0 dBV (1.0V RMS)

HEADROOM:

Nominal = 18 dB

Red LED = 8 dB

PAN CHARACTERISTICS:

2 dB down at Mid Position

LED LEVEL:

Green = -10 dBV (.32V RMS)

Red = +10 dBV (3.2V RMS)

MASTER

LED METER CALIBRATION:

0 = 0 dBV (1.0V RMS)

NOMINAL OUTPUT LEVEL:

Master = +0 dBV (1.0V RMS)

L & R = +0 dBV (1.0V RMS)

Monitor A & B = +0 dBV (1.0V RMS)

Effects A & B: High = 0 dBV (1.0V RMS)

Low = -12 dBV (.25V RMS)

NOMINAL HEADROOM:

Master = 19 dB

L & R = 19 dB

Monitor A & B = 19 dB

Effects A & B 19 dB

MAXIMUM OUTPUT LEVEL:

Master = + 19.5 dBV (9.5V RMS, +21.5 dBv)

L & R = +19.5 dBV (9.5V RMS, +21.5 dBv)

Monitor A & B = 19.9 dBV (9.5V RMS, +21.5 dBv)

Effects A & B: High = 18 dBV (9.0V RMS, + 20 dBv)

Low = 6 dBV (2.0V RMS, + 8 dBv)

OUTPUT IMPEDANCE:

Master = 100 Ohms

L & R = 100 Ohms

Monitor A & B = 100 Ohms

Effects A & B: High = 1000 Ohms

Low = 250 Ohms

OUTPUT NOISE:

MS-12

Residual: -99 dBV

(L & R sliders down)

Bus: -82 dBV

(All channel sliders down, Effects Returns down, all Pan at middle)

Nominal: -78 dBV

(All channels at 30 dB Gain, 150 Ohm input, EQ flat, Pan middle, sliders at 0, assigns at L & R, Effects Returns down)

MS-16

Residual: -99 dBV

(L & R sliders down)

Bus: -80.5 dBV

(All channel sliders down, Effects Returns down, all Pan at middle)

Nominal: -76 dBV

(All channels at 30 dB Gain, 150 Ohm input, EQ flat, Pan middle, sliders at 0, assigns at L & R, Effects Returns down)

EFFECTS A & B RETURN INPUT IMPEDANCE:

80K Ohms

EFFECTS A & B RETURN GAIN:

16 dB Max

PFL AUX:

Tip = PFL Signal at 1V RMS Nom

Ring = PFL Switch Signal (Grounding activates PFL)

HEADPHONE:

Stereo 8 Ohm to 200 Ohm nominal

Tip = Left, Ring = Right, Sleeve = Ground

500 mW total power

Less than 1% distortion

GRAPHIC EQUALIZERS

(All sliders flat, 1.0V RMS unless noted)

FILTER BANDWIDTH:

1 Octave

FILTER FREQUENCIES:

63, 125, 250, 500, 1K, 2K, 4K, 8K, 16 kHz (ISO Stds.)

FILTER Q:

1.57

MAXIMUM BOOST & CUT:

+ 12 dB

DISTORTION (THD):

.05% Maximum

FREQUENCY RESPONSE:

5 Hz to 40 kHz + 1 dB

INPUT LEVEL:

Nom = 0 dBV (1.0V RMS)

Max = 19 dBV (9V RMS)

OUTPUT LEVEL:

Nom = 0 dBV (1.0V RMS)

Max = 19 dBV (9V RMS)

INPUT IMPEDANCE:

20K Ohms

OUTPUT IMPEDANCE:

100 Ohms

RIAA PREAMP**INPUT IMPEDANCE:**

47K Ohms

NOMINAL INPUT:

12 mV RMS at 1 kHz

ELECTRONIC CROSSOVER**CROSSOVER FREQUENCY:**

500 Hz, 800 Hz, or 1200 Hz (Switch-Selectable)

FILTER SLOPE:

18 dB per Octave

FILTER TYPE:

High & Low = Butterworth

High (Pad and EQ) EQ = Modified Butterworth

(Mid Frequency Pad with High Frequency EQ)

INPUT IMPEDANCE:

5K Ohms

OUTPUT IMPEDANCE:

Low = 100 Ohms

High = 100 Ohms

High EQ = 1K Ohm

INPUT LEVEL:

Nom = 0 dBV (1.0V RMS)

Max = +18 dBV (8V RMS)

OUTPUT LEVEL (HIGH & LOW):

Nom = 0 dBV (1.0V RMS)

Max = +18 dBV (8V RMS)

OUTPUT LEVEL (HIGH (PAD AND EQ)):

Nom = -6 dBV at 1 kHz

= -1.5 dBV at 10 kHz

Max = +12 dBV at 1 kHz (4V RMS)

= +16.5 dBV at 10 kHz (6.6V RMS)

ELECTRONIC DELAY**DELAY TIME:**

Max = 185 ms.

Min = 13 ms.

DISTORTION (0 dBV):

Less than 1%

OUTPUT NOISE (INPUT SHORTED):

-104 dBV

FREQUENCY RESPONSE:

20 -20,000 Hz Max

High Frequency limit depends upon delay time

INPUT LEVEL:

Nom = 0 dBV (1.0V RMS)

Max = +6 dBV (2.0V RMS)

OUTPUT LEVEL:

Nom = 0 dBV (1.0V RMS)

Max = +6 dBV (2.0VRMS)

INPUT IMPEDANCE:

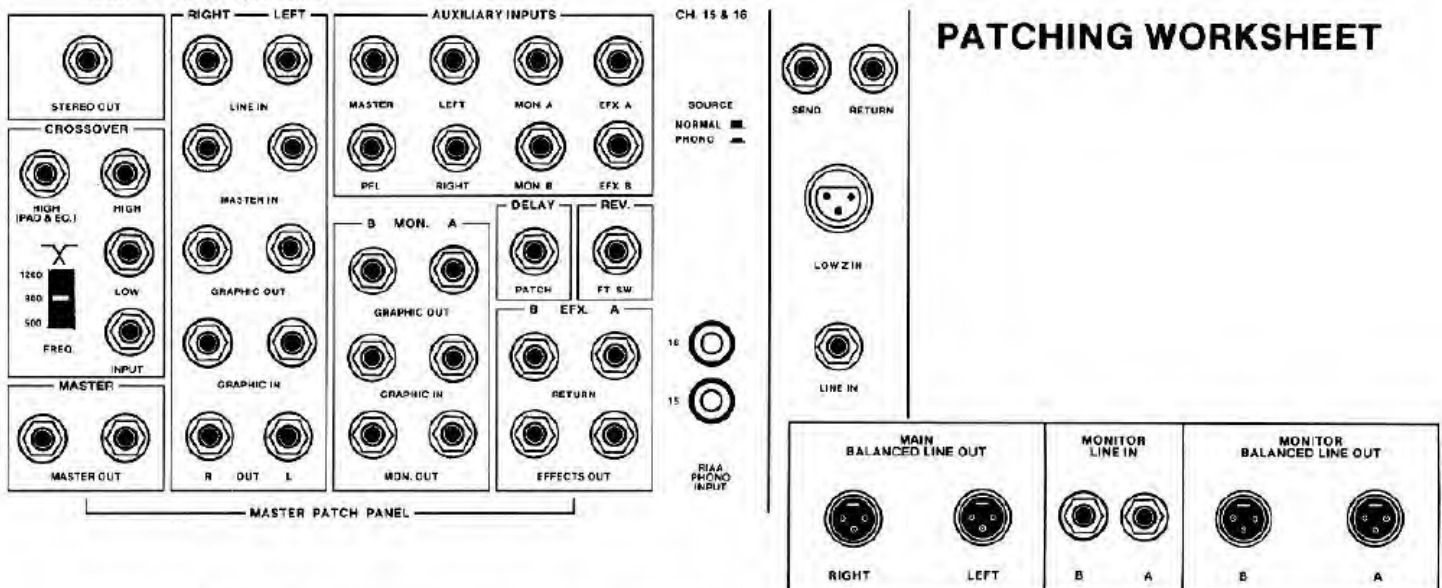
33K Ohms

OUTPUT IMPEDANCE:

100 Ohms

POWER CONSUMPTION

MS = 120 VAC 60 Hz, 90 Watts Max.

**PATCHING WORKSHEET**

CAUTION

EXPOSURE TO EXTREMELY HIGH NOISE LEVELS MAY CAUSE A PERMANENT HEARING LOSS. INDIVIDUALS VARY CONSIDERABLY IN SUSCEPTIBILITY TO NOISE-INDUCED HEARING LOSS, BUT NEARLY EVERYONE WILL LOSE SOME HEARING IF EXPOSED TO SUFFICIENTLY INTENSE NOISE FOR A SUFFICIENT TIME.

THE U.S. GOVERNMENT'S OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) HAS SPECIFIED THE FOLLOWING PERMISSIBLE NOISE LEVEL EXPOSURES:

DURATION PER DAY IN HOURS

8

6

4

3

2

1.5

1

0.5 or less

SOUND LEVEL (dBA) SLOW RESPONSE

90

85

80

75

70

65

60

55

50

45

40

35

30

25

20

15

10

5

0

ACCORDING TO OSHA, ANY EXPOSURE IN EXCESS OF THE ABOVE PERMISSIBLE LIMITS COULD RESULT IN SOME HEARING LOSS.

EACH PERSON SHOULD BE AWARE OF THE LIMITS AND EXPOSURE TO NOISE. WHEN OPERATING THE APPLICATION SYSTEM, IN ORDER TO PREVENT A PERMANENT HEARING LOSS IF EXPOSURE TO NOISE IS IN EXCESS OF THE LIMITS, A PERSON SHOULD BE AWARE OF THE NOISE LEVELS. IT IS RECOMMENDED THAT ALL PERSONS EXPOSED TO EQUIPMENT CAPABLE OF PRODUCING NOISE SHOULD BE PROTECTED BY HEARING PROTECTORS WHILE THIS UNIT IS IN OPERATION.

CAUTION

THIS STEREO CONSOLE/PREAMP HAS BEEN DESIGNED AND CONSTRUCTED TO PROVIDE ADEQUATE SIGNAL VOLTAGE FOR PLAYING MODERN MUSIC. IMPROVED USE OF THE GAIN/EQUALIZATION CONTROLS AND PROPER USE OF EXTERNAL/EXTERNAL DEVICES MAY PREVENT CLIPPING (SQUARE WAVES) AND POSSIBLY CAUSE A FREQUENT DAMAGE TO THE LOUDSPEAKER SYSTEMS. EXCESSIVE USE OF THE GAIN/EQUALIZATION CONTROLS IN THEIR MAXIMUM POSITIONS IS THEREFORE NOT RECOMMENDED. PLEASE BE AWARE THAT MAXIMUM POWER CAN BE OBTAINED AT VERY LOW SETTING OF THE GAIN/EQUALIZATION CONTROLS IF THE INPUT SIGNAL IS VERY STRONG.

IT IS COMMON PRACTICE AMONG STEREO SOUND REINFORCEMENT EQUIPMENT TO IDENTIFY THE INDIVIDUAL CHANNELS WITH A STRIP OF TAPE PLACED ABOVE OR BELOW THE ROW OF JOLLY. THESE STRIPS OF TAPE SHOULD BE IDENTIFIED BY A STRIP OF TAPE WHICH CAN BE IDENTIFIED BY THE PAINT ON THE FACE PLATE. REMOVAL OF THE TAPE IS NOT RECOMMENDED. IT IS STRONGLY RECOMMENDED THAT SDC (ON TAPE) NOT BE USED ON PAINTED SURFACES. FOR ANY OTHER TAPE THAT IS NOT SPECIALLY DESIGNED FOR SUCH APPLICATIONS, MEDIUM OR LIGHT ADHESIVE MASKING OR METER LABEL TAPE IS RECOMMENDED IF TAPE IS USED. ANY TAPE LEFT ON PAINTED SURFACE FOR EXTENDED PERIODS WILL BE DIFFICULT TO REMOVE. NEVER USE CLEAR OR SCOTCH TAPE FOR THESE APPLICATIONS.

- Read all safety and operating instructions before using this product.
- All safety and operating instructions should be retained for future reference.
- Obey all cautions in the operating instructions and on the back of the unit.
- All operating instructions should be followed.
- This product should not be used near water, i.e. a bathtub, sink, swimming pool, wet basement, etc.
- This product should be located so that its exterior does not interfere with its proper ventilation. It should not be placed flat against a wall or placed in a built-in enclosure that will impede the flow of cooling air.
- This product should not be placed near a source of heat such as a stove, heater, radiator, or another heat-producing appliance.
- Connect only to a power supply of the type marked on the unit adjacent to the power supply cord.
- Never break off the ground pin on the power supply cord. For more information on grounding, write for our free booklet "Shock Hazards and Grounding."
- Power supply cords should always be handled carefully. Never walk on place equipment on power supply cords. Periodically check cords for cuts or signs of stress, especially at the plug and the point where the cord exits the unit.
- The power supply cord should be unplugged when the unit is to be unused for long periods of time.
- Never plug the unit into a power supply with a different voltage than the unit is designed for. The unit should be used only on a power supply with a different voltage than the unit is designed for. The unit should be used only on a power supply with a different voltage than the unit is designed for.
- Care should be taken so that objects do not fall and liquid does not spill into the unit through the ventilation holes or any other openings.
- This unit should be serviced by a qualified service technician only.
 - The power supply cord or plug has been damaged.
 - Anything has fallen on or near the unit.
 - The unit does not operate correctly.
 - The unit has been dropped or the enclosure damaged.
- The user should not attempt to service this equipment. All service work should be done by a qualified service technician.

THIS LIMITED WARRANTY VALID ONLY WHEN PURCHASED AND REGISTERED IN THE UNITED STATES OR CANADA. ALL EXPORTED PRODUCTS ARE SUBJECT TO WARRANTY AND SERVICES TO BE SPECIFIED AND PROVIDED BY THE AUTHORIZED DISTRIBUTOR FOR EACH COUNTRY.

Ces clauses de garantie ne sont valables qu'aux Etats-Unis et au Canada. Dans tous les autres pays, les clauses de garantie et de maintenance sont fixées par le distributeur national et assurées par lui selon la législation en vigueur.

Diese Garantie ist nur in den USA und Kanada gültig. Alle Export-Produkte sind der Garantie und dem Service des Importeurs des jeweiligen Landes unterworfen.

Esta garantía se valida solamente cuando el producto es comprado en E.U. continentales o en Canada. Todos los productos que sean comprados en el extranjero, están sujetos a las garantías y servicio que cada distribuidor autorizado determine y ofrezca en los diferentes países.

ONE-YEAR LIMITED WARRANTY/REMEDY

PEAVEY ELECTRONICS CORPORATION ("PEAVEY") warrants this product, EXCEPT for covers, footswitches, patchcords, tubes and meters, to be free from defects in material and workmanship for a period of one (1) year from date of purchase, PROVIDED, however, that this limited warranty is extended only to the original retail purchaser and is subject to the conditions, exclusions and limitations hereinafter set forth:

PEAVEY 90-DAY LIMITED WARRANTY ON TUBES AND METERS

If this product contains tubes or meters, Peavey warrants the tubes or meters contained in the product to be free from defects in material and workmanship for a period of ninety (90) days from date of purchase; PROVIDED, however, that this limited warranty is extended only to the original retail purchaser and is also subject to the conditions, exclusions and limitations hereinafter set forth.

CONDITIONS, EXCLUSIONS AND LIMITATIONS OF LIMITED WARRANTIES

These limited warranties shall be void and of no effect if:

- The first purchase of the product is for the purpose of resale; or
 - The original retail purchase is not made from an AUTHORIZED PEAVEY DEALER; or
 - The product has been damaged by accident or unreasonable use, neglect, improper service or maintenance, or other causes not arising out of defects in material or workmanship; or
 - The serial number affixed to the product is altered, defaced or removed.
- In the event of a defect in material and/or workmanship covered by this limited warranty, Peavey will:
- In the case of tubes or meters, replace the defective component without charge;
 - In other covered cases (i.e., cases involving anything other than covers, footswitches, patchcords, tubes or meters), repair the defect in material or workmanship or replace the product, at Peavey's option;
- and provided, however, that, in any case, all costs of shipping, if necessary, are paid by you, the purchaser.

THE WARRANTY REGISTRATION CARD SHOULD BE ACCURATELY COMPLETED AND MAILED TO AND RECEIVED BY PEAVEY WITHIN FOURTEEN (14) DAYS FROM THE DATE OF YOUR PURCHASE.

In order to obtain service under these warranties, you must:

- Bring the defective item to any AUTHORIZED PEAVEY DEALER or AUTHORIZED PEAVEY SERVICE CENTER and present therewith the ORIGINAL PROOF OF PURCHASE supplied to you by the AUTHORIZED PEAVEY DEALER in connection with your purchase from him of this product.
- If the DEALER or SERVICE CENTER is unable to provide the necessary warranty service you will be directed to the nearest other PEAVEY AUTHORIZED DEALER or AUTHORIZED PEAVEY SERVICE CENTER which can provide such service.

OR

- Ship the defective item, prepaid, to:

PEAVEY ELECTRONICS CORPORATION
International Service Center
Highway 80 East
MERIDIAN, MS 39301

including therewith a complete, detailed description of the problem, together with a legible copy of the original PROOF OF PURCHASE and a complete return address. Upon Peavey's receipt of these items:

If the defect is remedial under these limited warranties and the other terms and conditions expressed herein have been complied with, Peavey will provide the necessary warranty service to repair or replace the product and will return it, FREIGHT COLLECT, to you, the purchaser.

Peavey's liability to the purchaser for damages from any cause whatsoever and regardless of the form of action, including negligence, is limited to the actual damages up to the greater of \$500.00 or an amount equal to the purchase price of the product that caused the damage or that is the subject of or is directly related to the cause of action. Such purchase price will be that in effect for the specific product when the cause of action arose. This limitation of liability will not apply to claims for personal injury or damage to real property or tangible personal property allegedly caused by Peavey's negligence. Peavey does not assume liability for personal injury or property damage arising out of or caused by a non-Peavey alteration or attachment, nor does Peavey assume any responsibility for damage to interconnected non-Peavey equipment that may result from the normal functioning and maintenance of the Peavey equipment.

UNDER NO CIRCUMSTANCES WILL PEAVEY BE LIABLE FOR ANY LOST PROFITS, LOST SAVINGS, ANY INCIDENTAL DAMAGES OR ANY CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PRODUCT, EVEN IF PEAVEY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

THESE LIMITED WARRANTIES ARE IN LIEU OF ANY AND ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR USE; PROVIDED, HOWEVER, THAT IF THE OTHER TERMS AND CONDITIONS NECESSARY TO THE EXISTENCE OF THE EXPRESS, LIMITED WARRANTIES, AS HEREINABOVE STATED, HAVE BEEN COMPLIED WITH, IMPLIED WARRANTIES ARE NOT DISCLAIMED DURING THE APPLICABLE ONE-YEAR OR NINETY-DAY PERIOD FROM DATE OF PURCHASE OF THIS PRODUCT.

SOME STATES DO NOT ALLOW LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS, OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU. THESE LIMITED WARRANTIES GIVE YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY FROM STATE TO STATE.

THESE LIMITED WARRANTIES ARE THE ONLY EXPRESS WARRANTIES ON THIS PRODUCT, AND NO OTHER STATEMENT, REPRESENTATION, WARRANTY OR AGREEMENT BY ANY PERSON SHALL BE VALID OR BINDING UPON PEAVEY.

In the event of any modification or disclaimer of express or implied warranties, or any limitation of remedies, contained herein conflicts with applicable law, then such modification, disclaimer or limitation, as the case may be, shall be deemed to be modified to the extent necessary to comply with such law.

Your remedies for breach of these warranties are limited to those remedies provided herein and Peavey Electronics Corporation gives this limited warranty only with respect to equipment purchased in the United States of America.

INSTRUCTIONS — WARRANTY REGISTRATION CARD

1. Mail the completed WARRANTY REGISTRATION CARD to:

PEAVEY ELECTRONICS CORPORATION
POST OFFICE BOX 2898
MERIDIAN, MISSISSIPPI 39302-2898

- a. Keep the PROOF OF PURCHASE. In the event warranty service is required during the warranty period, you will need this document. **There will be no identification card issued by Peavey Electronics Corporation.**

2. IMPORTANCE OF WARRANTY REGISTRATION CARDS AND NOTIFICATION OF CHANGES OF ADDRESS:

- a. Completion and mailing of WARRANTY REGISTRATION CARDS — Should notification become necessary for any condition that may require correction, the REGISTRATION CARD will help ensure that you are contacted and properly notified.
- b. Notice of address changes — If you move from the address shown on the WARRANTY REGISTRATION CARD, you should notify Peavey of the change of address so as to facilitate your receipt of any bulletins or other forms of notification which may become necessary in connection with any condition that may require dissemination of information or correction.

3. You may contact Peavey directly by telephoning (601) 483-5365.

4. Please have the Peavey product name and serial number available when communicating with Peavey Customer Service.



Features and specifications are subject to change without notice.

PEAVEY ELECTRONICS CORPORATION 711 A Street/Meridian, MS 39302-2898/U.S.A./ (601) 483-5365/Telex: 504115/Fax: 484-4278

©1989

#80300550

Printed in U.S.A.